1(a).

Are Males More Likely to Have Affairs Once Become Parents Than Females? —A Study of Factors Affecting Extramarital Sex

It is estimated that 50% of American males and 26% of females had extramarital sex, according to a 1950-era studies done by an American researcher Alfred Kinsey. (The Kinsey Institute) So what are the factors that affect the chance of having extramarital sexual intercourse? In particular, does gender plays an important role? By viewing TV sitcoms, one has came up with the hypothesis that women become insular and overly protective once they become mothers while new fathers are likely to feel neglected and constrained. This report tries to discover the gender & children effects, along with other effects, on the chances that an individual has an affair.

The dataset this report used is from a survey conducted by American magazines *Redbook and Psychology Today* in 1969, it collected data from 600 married readers of the magazine, who gave information about the frequency they had extramarital sex during the past year, and their 9 personal information including gender, age, years since married, if they have children, religiousness, level of education, kinds of occupation and rating of the marriage. In this analysis, two models were built, they are *Affairs1* and *Affairs2*. Since we are interested in whether a person has an affair or not, Logistic Regression was used in both models because the response is either 0 or 1. The first model is $Y_i \sim Binomial(N_i, \mu_i)$, $log\left(\frac{\mu_i}{1-\mu_i}\right) = X_i\beta$, For the i_{th} person, the chance of having at least one affair is μ_i. The covariates, X_i are as follows. I use the variables within the dataset, combing the research question of interest, to create several vairables (and the remaining variable I used is the dataset's variables). The first one is *ever*, it returns 1 if a person once has an affair during the past year and 0 if not. It is created by identifying whether the number of affairs is 0 or not. The second one is *gender:children*, it is the dummy variable that have four levels: *gendermale:childrenyes* (male with children), *genderfemale:childrenno* (male with no children), *genderfemale:childrenyes* (female with children) and *genderfemale:childrenno* (female with no children), and the reference level is *gendermale:childrenyes.* The third one is *religious*, a factor variable that is generating from variable religiousness. It has five levels, *religiousanti*, *religiousno* (reference level), *religiouslow*, *religiousmed* and *religioushigh*, indicating level of religiousness, from anti to high. The remaining are *ageC* and *yearsmarriedC* and *ratingC*, the centered variables of *age* and *yearsmarried* and *rating*. Since the median of age, years of marriage and rating of the marriage of respondents in the survey are 32 and 7 (years), and 4 (out of 5), we substract two variables by 32, 7 and 4 so these three variables are centred and easier to interpret. The remaining vairables are *education* (numeric) and *occupation* (numeric). The second model is also $Y_i \sim Binomial(N_i, \mu_i)$, $log\left(\frac{\mu_i}{1-\mu_i}\right) = X_i\beta$ except I delete the variables *education* and *occupation*. For the i_{th} person, the chance of having at least one affair is μ_i The response(log of ever has an affair) is in both model is linked to a linear combination of covariates with a logit link. The first model, *Affairs1*, discovers the relationships between having affairs and all the covariates (gender:children, ageC, yearsmarriedC, religious, education, occupation, rating); while the second model removes the effects of education and occupation, only analysing the effects of remaining vairables. I chose *Affairs2* instead of *Affairs1* because the P-value for education and occupation is too large (0.63561 and 0.61794), reflecting that they are not that relavent to the chances of having affairs (under this model).

From the summary of the model *Affairs2*, we see the coefficients for *religiousanti*, *religiouslow*, *religiousmed* and *religioushigh* are decreasing, meaning that the chances of having affairs decreases with religious level. For example, for a 32 years old male who has been married for 7 years, rates his marriage at 4 (out of 5), has at least one child, the chances of having affairs is only $0.626 * 0.266 = 0.166516$ if he is highly religious and 0.266 if he has no religion. Age is also affecting the chances of having affairs. A person with higher age would be slightly less likely to have affairs. The probability would decrease by 4% with 1 year increase in age. Asides from these variables, we see Baseline prob of 0.266, meaning for a 32 years old non-religious male, who has been married for 7 years, rates his marriage at 4 (out of 5), has at least one child, the chances of having extramarital sex is 0.266, we estimated this probability to be between 0.184 and 0.364 (using 95% confidence interval, same below when estimating ranges). At the same time, a male in the same condition except that he dose not have any children, the estimated probability of having affairs is between $0.266 * 0.366 = 0.097356$ and $0.266 * 1.560 = 0.41496$. For a female who has at least one child, this probability is estimated between $0.266 * 0.448 = 0.119168$ and $0.266 * 1.128 = 0.300048$; For a female who does not have any children, this probability is estimated between $0.266 * 0.197 = 0.052402$ and $0.266 * 0.933 = 0.248178$.

Since the 95% confidence intervals all overlap each other and contain 1, except for *genderfemale:childrenno*, we can only be sure that a female with no children is less likely to have affairs than a new father, but draw no conclusion about whether males are more likely to have children than females once becoming parents. However, if we only look at the point estimate, then the chances of having affairs increase $\frac{0.713-0.440}{0.440} = 62\%$ for females, and $\frac{1-0.770}{0.770} = 30\%$ for males. Therefore, we are somewhat sure that the result is not consistent with the hypothesis that males would be more likely to have affairs once becoming parents than females. Also, interestingly, males in general are more likely to have affairs than females.

Reference

The Kinsey Institute. Data from Alfred Kinsey's Studies Archived 2010-07-26 at the Wayback Machine. Published online.

1(b).

In a study of how having children would affect the chances of having affairs for males and females, the researcher finds that females might be more likely to have affairs than males after becoming parents. This is a suprising result because before the study, the researcher believed that females would feel overly protective after being a mother while new fathers are likely to feel neglected and constrained, so males might be more likely to have affairs than females. Indeed, among all other factors, gender plays an important role when discovering the factors affecting the chances of having extramarital sex. Males are more likelt to have affairs than women in general. The study finds for a normal 32 years old non-religious male, who has been married for 7 years, has at least one child and feels quite satisying for his marriage, the chances of having extramarital sex is between 18% to 36%, while the chances are between 10% and 41% for a male with no children. The number declines for females, the chances are only between 5% to 25% for females with no children and between 12% to 30% for a female has at least one child. Also, the rating of the marriage and years of marriage are also very important factors affecting chances of having affairs, we would expect to see people who rates her/his marriage high to have less affairs while anti-religious people and people who got into marriage long to have more affairs.

2.

We are interested in discovering the answers to two questions: if the proportion of American youth ever smoked cigars, cigarillos or little cigars is different for white-Americans, Hispanic Americans and African-Americans, and if the proportion of males and females that ever tried smoking electronic cigarettes is the same, given their age, ethnicity, and other demographic characteristics are similar. This short report will use relavent information given in the dataset and discover the race effect on smoking cigars and the gender effect on smoking electronic cigarettes.

The dataset that is used is from 2019 American National Youth Tobacco Survey, total oberservation are 19018 and there are 431 variables. Since we are only interested in whether a youth has smoked cigars, cigarillos or little cigars or not, as well as the proportion of males and females that ever tried smoking electronic cigarettes, we see that the response is either 0 or 1. Therfore, Logistic Regression with a logit link is used in both question. For the first question to be investgated, I used Logistic model *smoke1*, $Y_i \sim Binomial(N_i, \mu_i)$, $log\left(\frac{\mu_i}{1-\mu_i}\right) = X_i\beta$, For the i_{th} youth, the chance of ever tried cigars, cigarillos or little cigars is μ_i. The response (proportion of youths ever smoked cigars, cigarillos, or little cigars) is linked to a linear combination of the covariates with a logit link. The covariates are age (*AgeC*, numeric and centered at 14, the median of age of the respondents), rurality (*RuralUrban*, categorical with levels Rural and Urban, urban is the reference category), race (*Race*, categorical with levels White, Black, Hispanic, Asian, Native, Pacific, White is the reference level) and sex (*Sex*, categorical with levels Female and Male, male is the reference level), and an interaction term, *RuralUrban*Race*. I added this interaction term because I wonder what is the interaction between rurality and race, for example is white people like to live in rural area or in the city? Also, I included *AgeC* variable and *Sex* variable because their p-value when fitting my model is really small, meaning they are statistically significant. For the second question, I used the Logistic model *smoke2*, $Y_i \sim Binomial(N_i, \mu_i)$, $log\left(\frac{\mu_i}{1-\mu_i}\right) = X_i\beta$, For the i_{th} youth, the chance of ever tried an e-cigarettes is μ_i. The response (proportion of youths ever smoked e-cigarette) is linked to a linear combination of the covariates with a logit link. The covariates are age (*AgeC*, numeric and centered at 14, the median of age of the respondents), rurality (*RuralUrban*, categorical with levels Rural and Urban, urban is the reference category), race (*Race*, categorical with levels White, Black, Hispanic, Asian, Native, Pacific, White is the reference level) and sex (*Sex*, categorical with levels Female and Male, male is the reference level).

For the first model *smoke1*, we can interpret the result as the following. For a 14-year old white urban male, the chance of ever smoked cigars, cigarillos or little cigars is 0.087, and we are 95% sure (95% confidence interval is used throughout the report) that it is between 0.078 and 0.096. We see from the summary table that the estimated probability that a 14-year old black urban male ever smoked cigars, cigarillos or little cigars is between $0.087 * 1.193 = 0.104$ and $0.087 * 1.723 = 0.150$, while the estimated probability that a 14-year old Hispanic urban male ever smoked cigars, cigarillos or little cigars is between $0.087 * 0.933 = 0.081$ and $0.087 * 1.258 = 0.110$. Also, we see a 95% confidence interval of (0.904, 1.496) for *RuralUrbanRural:Raceblack*. The estimate for *RuralUrbanRural* is between 1.413 and 1.818, which is completely above 1. For the second model *smoke2*, we can interpret the result as the following. For a 14-year old white urban male, the chance of ever smoked e-cigarette is between 0.293 and 0.322. Observe that the coefficient for *SexF* is 0.942, with a 95% confidence interval of (0.883, 1.005), so the chance of a 14-year old white urban female ever smoked e-cigarette follows immediately, is between $0.087 * 0.307 = 0.271$ and $0.087 * 1.005 = 0.309$.

The results shown above is not consistent with the first hypothesis that "Smoking of cigars, cigarillos or little cigars is no more common amongst Americans of European ancestry than for African-Americans", because both the coefficient (point estimate) and confidence interval (interval estimate) are above 1, meaning that we are 95% sure that it is likely that having the same condition, a black person would be more likely to have tried smoking cigars, cigarillos than a white person. But is consistent with the hypothesis that it is no more common amongst Hispanic-Americans because its confidence interval includes 0, we thus can draw no conclusion out of it. Also, a confidence interval of (0.904, 1.496) for *RuralUrbanRural:Raceblack* indicates that black people, other than white people, are (somewhat) more willing to live in the rural area while a confidence interval of (1.413, 1.818) for *RuralUrbanRural* shows that smoking cigars, cigarillos or little cigars is more common in rural area than in the city since it is completely above 1. The results are, however, consistent with the second hypothesis saying that "The likelihood of having used an electronic cigarette on at least one occasion is the same for two individuals of the different sexes, provided their age, ethnicity, and other demographic characteristics are similar." This is because the confidence interval of *SexF* is between (0.883, 1.005), which contains 1, meaning that we cannot draw any conclusion about whether proportion of males every tried e-cigarette is larger than the proportion of females.

In conclusion, by using the model suiting for this data, we draw conclusion that while it is true that cigar smoking is a rural phenomenon and smoking of cigars, cigarillos or little cigars is no more common among Americans of European ancestry and Hispanic-Americans, it is found that African-Americans are more likely to live in the rural area and smoke cigars, cigarillos or little cigars than Americans of European ancestry. Meanwhile, our results are consistent with the hypothesis that the chances of having used an electronic cigarette on at least one occasion is the same for two individuals of the different sexes, provided their age, ethnicity, and other demographic characteristics are similar.

STA442 Homework 1

Zheyuan Fan

06/10/2020

Apprendix: Code

```
data('Affairs', package='AER')
Affairs$ever = Affairs$affair > 0
Affairs$religious = factor(Affairs$religiousness,levels = c(2,1,3,4,5), labels = c('n
o','anti','low','med','high'))
quantile(Affairs$age)
```

```
##   0%  25%  50%  75% 100%
## 17.5 27.0 32.0 37.0 57.0
```

```
quantile(Affairs$yearsmarried)
```

```
##     0%    25%    50%    75%   100%
##  0.125  4.000  7.000 15.000 15.000
```

```
quantile(Affairs$rating)
```

```
##   0%  25%  50%  75% 100%
##    1    3    4    5    5
```

```
Affairs$ageC <- Affairs$age - 32
Affairs$yearsmarriedC <- Affairs$yearsmarried - 7
Affairs$ratingC <- Affairs$rating - 4
Affairs1 <- glm(formula = ever ~ gender:children + ageC + yearsmarriedC + religious +
ratingC + occupation + education, data = Affairs, family = binomial(link = "logit"))
summary(Affairs1)
```

```
##
## Call:
## glm(formula = ever ~ gender:children + ageC + yearsmarriedC +
##     religious + ratingC + occupation + education, family = binomial(link = "logit"
),
##     data = Affairs)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.4652  -0.7560  -0.5421  -0.2796   2.5469
##
## Coefficients: (1 not defined because of singularities)
##                          Estimate Std. Error z value Pr(>|z|)
## (Intercept)              -1.63214    0.84934  -1.922  0.05465 .
## ageC                     -0.04240    0.01851  -2.290  0.02202 *
## yearsmarriedC             0.09085    0.03277   2.773  0.00556 **
## religiousanti             0.95504    0.36671   2.604  0.00921 **
## religiouslow              0.36332    0.27886   1.303  0.19262
## religiousmed             -0.56069    0.28472  -1.969  0.04892 *
## religioushigh            -0.46487    0.38154  -1.218  0.22308
## ratingC                  -0.48219    0.09305  -5.182 2.19e-07 ***
## occupation                0.03671    0.07360   0.499  0.61794
## education                 0.02425    0.05117   0.474  0.63561
## genderfemale:childrenno  -0.76306    0.40009  -1.907  0.05650 .
## gendermale:childrenno    -0.25186    0.36825  -0.684  0.49402
## genderfemale:childrenyes -0.21067    0.27575  -0.764  0.44487
## gendermale:childrenyes         NA         NA      NA       NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 675.38  on 600  degrees of freedom
## Residual deviance: 600.08  on 588  degrees of freedom
## AIC: 626.08
##
## Number of Fisher Scoring iterations: 4
```

```
Affairs2 <- glm(formula = ever ~ gender:children + ageC + yearsmarriedC + religious +
ratingC, data = Affairs, family = binomial(link = "logit"))
summary(Affairs2)
```

```
##
## Call:
## glm(formula = ever ~ gender:children + ageC + yearsmarriedC +
##     religious + ratingC, family = binomial(link = "logit"), data = Affairs)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.4446  -0.7588  -0.5469  -0.2714   2.5310
##
## Coefficients: (1 not defined because of singularities)
##                          Estimate Std. Error z value Pr(>|z|)
## (Intercept)              -1.01399    0.23708  -4.277 1.89e-05 ***
## ageC                     -0.04098    0.01838  -2.229  0.02579 *
## yearsmarriedC             0.09198    0.03274   2.810  0.00496 **
## religiousanti             0.94118    0.36634   2.569  0.01020 *
## religiouslow              0.34924    0.27792   1.257  0.20890
## religiousmed             -0.59216    0.28261  -2.095  0.03614 *
## religioushigh            -0.46884    0.38048  -1.232  0.21786
## ratingC                  -0.47394    0.09161  -5.174 2.30e-07 ***
## genderfemale:childrenno  -0.81998    0.39394  -2.082  0.03739 *
## gendermale:childrenno    -0.26179    0.36791  -0.712  0.47675
## genderfemale:childrenyes -0.33881    0.23515  -1.441  0.14963
## gendermale:childrenyes         NA         NA      NA       NA
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 675.38  on 600  degrees of freedom
## Residual deviance: 600.91  on 590  degrees of freedom
## AIC: 622.91
##
## Number of Fisher Scoring iterations: 4
```

```
knitr::kable(summary(Affairs2)$coef, digits=3)
```

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-1.014	0.237	-4.277	0.000
ageC	-0.041	0.018	-2.229	0.026
yearsmarriedC	0.092	0.033	2.810	0.005
religiousanti	0.941	0.366	2.569	0.010
religiouslow	0.349	0.278	1.257	0.209
religiousmed	-0.592	0.283	-2.095	0.036
religioushigh	-0.469	0.380	-1.232	0.218

ratingC	-0.474	0.092	-5.174	0.000
genderfemale:childrenno	-0.820	0.394	-2.082	0.037
gendermale:childrenno	-0.262	0.368	-0.712	0.477
genderfemale:childrenyes	-0.339	0.235	-1.441	0.150

```
install.packages("Pmisc", repos = "http://r-forge.r-project.org")
```

```
## Warning: unable to access index for repository http://r-forge.r-project.org/bin/ma
cosx/contrib/4.0:
##   cannot open URL 'http://r-forge.r-project.org/bin/macosx/contrib/4.0/PACKAGES'
```

```
## installing the source package 'Pmisc'
```

```
(theCiMat = Pmisc::ciMat(0.95))
```

```
##             est       2.5     97.5
## Estimate     1  1.000000 1.000000
## Std. Error   0 -1.959964 1.959964
```

```
parTable = summary(Affairs2)$coef[,rownames(theCiMat)] %*% theCiMat

logOddsMat = cbind(est = Affairs2$coef, confint(Affairs2, level = 0.95))
```

```
## Waiting for profiling to be done...
```

```
oddsMat = exp(logOddsMat)
oddsMat[1, ] = oddsMat[1, ]/(1 + oddsMat[1, ])
rownames(oddsMat)[1] = "Baseline prob"
knitr::kable(oddsMat, digits = 3)
```

	est	2.5 %	97.5 %
Baseline prob	0.266	0.184	0.364
ageC	0.960	0.925	0.994
yearsmarriedC	1.096	1.029	1.170
religiousanti	2.563	1.245	5.261
religiouslow	1.418	0.822	2.450
religiousmed	0.553	0.316	0.960

religioushigh	0.626	0.289	1.294
ratingC	0.623	0.519	0.744
genderfemale:childrenno	0.440	0.197	0.933
gendermale:childrenno	0.770	0.366	1.560
genderfemale:childrenyes	0.713	0.448	1.128
gendermale:childrenyes	NA	NA	NA

```
dataDir = "/Users/6ixlegend/Desktop/STA442/Assignment 1"
smokeFile = file.path(dataDir, "smokeDownload.RData")
if (!file.exists(smokeFile)) {
download.file("http://pbrown.ca/teaching/appliedstats/data/smoke.RData", smokeFile)
}
(load(smokeFile))
```

```
## [1] "smoke"        "smokeFormats"
```

```
smokeSub = smoke[which(smoke$Age >= 10), ]
quantile(smokeSub$Age)
```

```
##   0%  25%  50%  75% 100%
##   10   13   14   16   19
```

```
smokeSub$AgeC <- smokeSub$Age - 14
smoke1 <- glm(ever_cigars_cigarillos_or ~ RuralUrban + Race + RuralUrban*Race + Sex +
AgeC,
family=binomial(link = "logit"), data=smokeSub)
summary(smoke1)
```

```
##
## Call:
## glm(formula = ever_cigars_cigarillos_or ~ RuralUrban + Race +
##     RuralUrban * Race + Sex + AgeC, family = binomial(link = "logit"),
##     data = smokeSub)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.3963  -0.6004  -0.4206  -0.2948   2.9108
##
## Coefficients:
##                             Estimate Std. Error z value Pr(>|z|)
## (Intercept)                 -2.35359    0.05724 -41.118  < 2e-16 ***
## RuralUrbanRural              0.47135    0.06416   7.346 2.04e-13 ***
## Raceblack                    0.36185    0.09379   3.858 0.000114 ***
## Racehispanic                 0.08075    0.07620   1.060 0.289264
## Raceasian                   -1.11556    0.19513  -5.717 1.08e-08 ***
## Racenative                   0.57807    0.32619   1.772 0.076362 .
## Racepacific                  0.72746    0.35082   2.074 0.038117 *
## SexF                        -0.37852    0.04584  -8.258  < 2e-16 ***
## AgeC                         0.37419    0.01195  31.317  < 2e-16 ***
## RuralUrbanRural:Raceblack    0.15068    0.12858   1.172 0.241235
## RuralUrbanRural:Racehispanic -0.27238    0.10679  -2.551 0.010752 *
## RuralUrbanRural:Raceasian   -0.50325    0.41748  -1.205 0.228031
## RuralUrbanRural:Racenative  -0.46708    0.41828  -1.117 0.264131
## RuralUrbanRural:Racepacific -0.70113    0.58293  -1.203 0.229069
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 14545  on 18409  degrees of freedom
## Residual deviance: 13111  on 18396  degrees of freedom
##   (535 observations deleted due to missingness)
## AIC: 13139
##
## Number of Fisher Scoring iterations: 5
```

```
smoke2 <- glm(ever_ecigarette ~ RuralUrban + Race + Sex + AgeC,
family=binomial(link = "logit"), data=smokeSub)
summary(smoke2)
```

```
##
## Call:
## glm(formula = ever_ecigarette ~ RuralUrban + Race + Sex + AgeC,
##     family = binomial(link = "logit"), data = smokeSub)
##
## Deviance Residuals:
##     Min       1Q   Median       3Q      Max
## -1.7281  -0.8826  -0.6387   1.1318   2.4039
##
## Coefficients:
##                  Estimate Std. Error z value Pr(>|z|)
## (Intercept)     -0.812615   0.033914 -23.961  < 2e-16 ***
## RuralUrbanRural  0.130809   0.033287   3.930  8.5e-05 ***
## Raceblack       -0.514787   0.053547  -9.614  < 2e-16 ***
## Racehispanic    -0.089290   0.037699  -2.369   0.0179 *
## Raceasian       -1.009432   0.091571 -11.023  < 2e-16 ***
## Racenative       0.062086   0.153039   0.406   0.6850
## Racepacific      0.237059   0.215022   1.102   0.2702
## SexF            -0.060104   0.032975  -1.823   0.0683 .
## AgeC             0.336696   0.008438  39.901  < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
##     Null deviance: 23598  on 18400  degrees of freedom
## Residual deviance: 21599  on 18392  degrees of freedom
##   (544 observations deleted due to missingness)
## AIC: 21617
##
## Number of Fisher Scoring iterations: 4
```

```
knitr::kable(summary(smoke1)$coef, digits=3)
```

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-2.354	0.057	-41.118	0.000
RuralUrbanRural	0.471	0.064	7.346	0.000
Raceblack	0.362	0.094	3.858	0.000
Racehispanic	0.081	0.076	1.060	0.289
Raceasian	-1.116	0.195	-5.717	0.000
Racenative	0.578	0.326	1.772	0.076
Racepacific	0.727	0.351	2.074	0.038
SexF	-0.379	0.046	-8.258	0.000

AgeC	0.374	0.012	31.317	0.000
RuralUrbanRural:Raceblack	0.151	0.129	1.172	0.241
RuralUrbanRural:Racehispanic	-0.272	0.107	-2.551	0.011
RuralUrbanRural:Raceasian	-0.503	0.417	-1.205	0.228
RuralUrbanRural:Racenative	-0.467	0.418	-1.117	0.264
RuralUrbanRural:Racepacific	-0.701	0.583	-1.203	0.229

```
logOddsMat = cbind(est = smoke1$coef, confint(smoke1, level = 0.95))
```

```
## Waiting for profiling to be done...
```

```
oddsMat = exp(logOddsMat)
oddsMat[1, ] = oddsMat[1, ]/(1 + oddsMat[1, ])
rownames(oddsMat)[1] = "Baseline prob"
knitr::kable(oddsMat, digits = 3)
```

	est	2.5 %	97.5 %
Baseline prob	0.087	0.078	0.096
RuralUrbanRural	1.602	1.413	1.818
Raceblack	1.436	1.193	1.723
Racehispanic	1.084	0.933	1.258
Raceasian	0.328	0.219	0.472
Racenative	1.783	0.898	3.258
Racepacific	2.070	0.992	3.975
SexF	0.685	0.626	0.749
AgeC	1.454	1.420	1.488
RuralUrbanRural:Raceblack	1.163	0.904	1.496
RuralUrbanRural:Racehispanic	0.762	0.618	0.939
RuralUrbanRural:Raceasian	0.605	0.250	1.312
RuralUrbanRural:Racenative	0.627	0.279	1.453
RuralUrbanRural:Racepacific	0.496	0.150	1.518

```
knitr::kable(summary(smoke2)$coef, digits=3)
```

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-0.813	0.034	-23.961	0.000
RuralUrbanRural	0.131	0.033	3.930	0.000
Raceblack	-0.515	0.054	-9.614	0.000
Racehispanic	-0.089	0.038	-2.369	0.018
Raceasian	-1.009	0.092	-11.023	0.000
Racenative	0.062	0.153	0.406	0.685
Racepacific	0.237	0.215	1.102	0.270
SexF	-0.060	0.033	-1.823	0.068
AgeC	0.337	0.008	39.901	0.000

```
logOddsMat2 = cbind(est = smoke2$coef, confint(smoke2, level = 0.95))
```

```
## Waiting for profiling to be done...
```

```
oddsMat2 = exp(logOddsMat2)
oddsMat2[1, ] = oddsMat2[1, ]/(1 + oddsMat2[1, ])
rownames(oddsMat2)[1] = "Baseline prob"
knitr::kable(oddsMat2, digits = 3)
```

	est	2.5 %	97.5 %
Baseline prob	0.307	0.293	0.322
RuralUrbanRural	1.140	1.068	1.217
Raceblack	0.598	0.538	0.663
Racehispanic	0.915	0.849	0.985
Raceasian	0.364	0.304	0.435
Racenative	1.064	0.785	1.431
Racepacific	1.268	0.826	1.924
SexF	0.942	0.883	1.005
AgeC	1.400	1.377	1.424